

Claims

1. A mobile communication terminal board comprising:
a baseband chip for processing audio data;
an ultrasonic drive chip for receiving and modulating a signal output
5 from the baseband chip to an ultrasonic band signal; and
an ultrasonic speaker for outputting the ultrasonic signal output from
the ultrasonic drive chip to an outside.
2. The mobile communication terminal board as claimed in claim 1,
10 wherein the ultrasonic drive chip and the ultrasonic speaker are implemented
and installed as an integrated module.
3. The mobile communication terminal board as claimed in claim 1,
wherein the ultrasonic speaker is implemented by a plurality of thin film type
15 ultrasonic transducers.
4. The mobile communication terminal board as claimed in claim 1,
wherein the ultrasonic speaker is an ultrasonic transducer using a PVDF
(polyvinylidene difluoride) film type piezoelectric element.
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5. The mobile communication terminal board as claimed in claim 1,
wherein the ultrasonic speaker is implemented through an MEMS (Micro
Electro Mechanical System) technique.
- 25 6. The mobile communication terminal board as claimed in claim 5,
wherein the ultrasonic speaker and the ultrasonic drive chip are implemented as
one semiconductor chip.
7. The mobile communication terminal board as claimed in claim 1,
30 wherein the ultrasonic drive chip comprises:
a preprocessing unit for receiving audio data output from the baseband
chip and performing a band compensation and distortion compensation of the

received audio data;

a carrier generation unit for generating a carrier of an ultrasonic band;

a modulation unit for modulating an output signal of the preprocessing unit to the ultrasonic band signal using the carrier; and

5 an ultrasonic amplifying unit for amplifying an output signal of the modulation unit.

8. A mobile communication terminal board comprising:

10 an ultrasonic speaker for outputting a signal modulated to an ultrasonic band; and

a baseband chip, integrally provided with an ultrasonic drive chip for driving the ultrasonic speaker, for processing audio data.

15 9. The mobile communication terminal board as claimed in claim 8, wherein the ultrasonic speaker is implemented by a plurality of thin film type ultrasonic transducers.

20 10. The mobile communication terminal board as claimed in claim 8, wherein the ultrasonic speaker is an ultrasonic transducer using a PVDF (polyvinylidene difluoride) film type piezoelectric element.

25 11. The mobile communication terminal board as claimed in claim 8, wherein the ultrasonic speaker is implemented through an MEMS (Micro Electro Mechanical System) technique.

12. The mobile communication terminal board as claimed in claim 11, wherein the ultrasonic speaker and the ultrasonic drive chip are implemented as one semiconductor chip.

30 13. The mobile communication terminal board as claimed in claim 8, wherein the ultrasonic drive chip comprises:

a preprocessing unit for receiving audio data output from the baseband

chip and performing a band compensation and distortion compensation of the received audio data;

a carrier generation unit for generating a carrier of an ultrasonic band;

5 a modulation unit for modulating an output signal of the preprocessing unit to the ultrasonic band signal using the carrier; and

an ultrasonic amplifying unit for amplifying an output signal of the modulation unit.